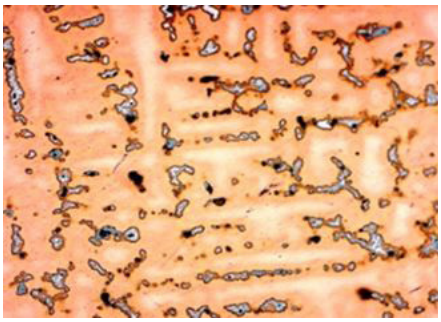
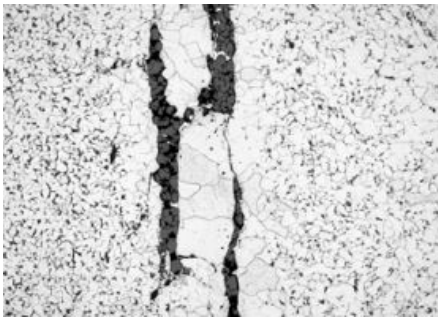
Espace de l'Europe 11 - CH–2000 Neuchâtel
+41 32 930 19 19 www.he-arc.ch

MIFAC-MÉTAL





OBJECTIVES

Methodology to study and analyse the microstructures and corrosion forms of ancient and historic metals : application to metallographic samples from Swiss collections.

PROGRAM

The conservation of ancient and historic metal artefacts requires a detailed understanding of both their composition and alteration.

Based on this knowledge, preventive conservation strategies and curative treatments can be developed to stabilise active corrosion processes, while preserving all relevant information. The invasive and/or destructive character of metallography, as well as some associated chemical analyses, is the main factor which limits their use for cultural heritage artefacts.

Nevertheless, over the years, a great number of archaeological and historic metal objects have been sampled. These studies cover all pre-industrial metal families (Fe, Cu, Ag, Au, Pb and Sn). Unfortunately this data rarely contains information on corrosion forms and the nature of the corrosion products.

In the MIFAC-Métal project, 32 previously studied samples from Swiss collections were selected and their microstructure and corrosion crust re-analyzed with a standardized protocol.

RESULTS

The results are presented in a comprehensive catalogue and illustrated with images of the artefacts, the sampled sections, their microstructure and elementary mapping of selected areas, highlighting the most important information from the material examined. The resulting catalogue (or "atlas") of case studies is to be increased in the coming years and will become a useful tool for archaeometallurgists, corrosion scientists and conservators to better understand corrosion mechanisms, but also to approach the analysis of metals in a more consequent and methodological way.

USEFUL LINKS

- Final report

FUNDING

HES-SO, Réseau de Compétences Design.

PROJECT LEADER

Christian Degrigny
christian.degrigny@he-arc.ch
(2009-2011 : Aurélie Rogalla von Bieberstein)

PARTNERS

Laboratoire fédéral d'essai des matériaux et de recherche, Dübendorf (EMPA); Institut des microtechniques appliquées, HE-Arc Ingénierie (IMA).

DURATION

2009-2012